List of Contents

		NUMBER 1
Graeme Bonham-Carter	1	Editorial
X. Luo and R. Dimitrakopoulos	3	Data-driven fuzzy analysis in quantitative mineral resource assessment
Silong Lu, Fred J. Molz and Hui Hai Liu	15	An efficient, three-dimensional, anisotropic, fractional Brownian motion and truncated fractional Levy motion simulation algorithm based on successive random additions
Stephan Bojinski, Michael Schaepman, Daniel Schläpfer and Klaus Itten	27	SPECCHIO: a spectrum database for remote sensing applications
Bora Oz, Clayton V. Deutsch, Thomas. T. Tran and YuLong Xie	39	DSSIM-HR: A FORTRAN 90 program for direct sequential simulation with histogram reproduction
Borut Žalik, Mirko Zadravec and Gordon J. Clapworthy	53	Construction of a non-symmetric geometric buffer from a set of line segments
John Kemeny and Randy Post	65	Estimating three-dimensional rock discontinuity orientation from digital images of fracture traces
N.N. Ozyurt and C.S. Bayari	79	LUMPED: a Visual Basic code of lumped-parameter models for mean residence time analyses of groundwater systems
D.Ch.Venkata Raju	91	LIMAT: a computer program for least-squares inversion of magnetic anomalies over long tabular bodies
Achim D. Herrmann, Mark E. Patzkowsky and Steven M. Holland	99	BIOMODULE: a Java program to help model and interpret the stratigraphic record
Short note		
JR. de Dreuzy and J. Erhel	107	Efficient algorithms for the determination of the connected fracture network and the solution to the steady-state flow equation in fracture networks
Book Review		
James R. Carr	113	Geostatistical reservoir modeling
		NUMBER 2
Dejan Rančić and Slobodanka Djordjevi-Kajan	115	MapEdit: solution to continuous raster map creation*

Dejan Rančić and Slobodanka Djordjevi-Kajan	115	MapEdit: solution to continuous raster map creation*
P.A. Dowd, E. Pardo-Igúzquiza and C. Xu	123	Plurigau: a computer program for simulating spatial facies using the truncated plurigaussian method*
Sait I. Ozkaya and Joerg Mattner	143	Fracture connectivity from fracture intersections in borehole image logs
G. Gabalda, S. Bonvalot and R. Hipkin	155	CG3TOOL: an interactive computer program to process Scintrex CG-3/3M gravity data for high-resolution applications*

IV		List of Contents
Luc Empereur-Mot and Thierry Villemin	173	$\label{eq:obs:continuous} OBSIFRAC: database-supported software for 3D modeling of rock mass fragmentation ^*$
W.E. Featherstone	183	Software for computing five existing types of deterministically modified integration kernel for gravimetric geoid determination*
Rongjiang Wang, Francisco Lorenzo Martín and Frank Roth	195	Computation of deformation induced by earthquakes in a multi-layered elastic crust—FORTRAN programs EDGRN/EDCMP*
Thomas A. Jones	209	FP2VF: Fortran 90 program to generate a vector field from flowpaths*
Ninan Sajeeth Philip and K. Babu Joseph	215	A neural network tool for analyzing trends in rainfall
Clifford R. Stanley	225	THPLOT.M: A MATLAB function to implement generalized Thompson–Howarth error analysis using replicate data*
Short note		
Robert G. Garrett and Eric C. Grunsky	239	S and R functions for the display of Thompson-Howarth plots°
Erratum		
G. Drogue, L. Pfister, T. Leviandier, J. Humbert, L. Hoffmann, A. E1 Idrissi and JF. Iffly	243	Erratum to "Using 3D dynamic cartography and hydrological modelling for linear streamflow mapping" [Computers & Geosciences 28(2002) 981–994]
		NUMBER 3
Lauren Browning and William M. Murphy	245	Guest Editorial: Reactive transport modeling in the geosciences

Lauren Browning and William M. Murphy	245	Guest Editorial: Reactive transport modeling in the geosciences
Lauren Browning, William M. Murphy, Chandrika Manepally and Randall Fedors	247	Reactive transport model for the ambient unsaturated hydrogeochemical system at Yucca Mountain, Nevada
Jan van der Lee, Laurent De Windt, Vincent Lagneau and Patrick Goblet	265	Module-oriented modeling of reactive transport with HYTEC
Anthony J. Park and Peter J. Ortoleva	277	WRIS.TEQ: multi-mineralic water-rock interaction, mass-transfer and textural dynamics simulator
Filip J.R. Meysman, Jack J. Middelburg, Peter M.J. Herman and Carlo H.R. Heip	291	Reactive transport in surface sediments. I. Model complexity and software quality
Filip J.R. Meysman, Jack J. Middelburg, Peter M.J. Herman and Carlo H.R. Heip	301	Reactive transport in surface sediments. II. Media: an object-oriented problem-solving environment for early diagenesis
Gary P. Curtis	319	Comparison of approaches for simulating reactive solute transport involving organic degradation reactions by multiple terminal electron acceptors
Pierre D. Glynn	331	Modeling Np and Pu transport with a surface complexation model and spatially variant sorption capacities: implications for reactive transport modeling and performance assessments of nuclear waste disposal sites

Chen Zhu 351 A case against K_d-based transport models: natural attenuation at a mill tailings site Diana H. Bacon and B. Peter McGrail 361 Lessons learned from reactive transport modeling of a low-activity waste glass disposal system Peter C. Lichtner and 371 Estimation of Hanford SX tank waste compositions from historically Andrew R. Felmy derived inventories Yueting Chen 385 Using reactive transport modeling to evaluate the source term at Yucca Mountain William E. Glassley, John J. Nitao, 399 The impact of climate change on vadose zone pore waters and its Charles W. Grant, James W. Johnson, implication for long-term monitoring Carl I. Steefel and James R. Kercher

NUMBER 4

Yvette Marchand and Renaud Cazoulat	413	Biological reef survey using spot satellite data classification by cellular automata method - Bay of Mont Saint-Michel (France)
Alan E. Boudreau	423	IRIDIUM—a program to model reaction of silicate liquid infiltrating a porous solid assemblage"
D.K. Keum and P.S. Hahn	431	A coupled reactive chemical transport model: mixing cell model with two solid phases and its application
Jerry F. Magloughlin and Lawrence Edwards	447	SmNdMin: a program for modeling the Nd isotopic evolution of metamorphic porphyroblasts and their host rocks*
Enrique R. Vivoni and Richard Camilli	457	Real-time streaming of environmental field data
David Nieva and Rosa María Barragán	469	HCO-TERNARY: A FORTRAN code for calculating P -V-T-X properties and liquid vapor equilibria of fluids in the system H_2O -CO $_2$ -CH $_4$ *
Angel P. Venedikov, José Arnoso and Ricardo Vieira	487	VAV: a program for tidal data processing *
Qiang Wu and Hua Xu	503	An approach to computer modeling and visualization of geological faults in $\ensuremath{\mathtt{3D}}$
Göran Källvenius and Christian Ekberg	511	TACK—a program coupling chemical kinetics with a two-dimensional transport model in geochemical systems*
Mir Abolfazl Mostafavi, Christopher Gold and Maciej Dakowicz	523	Delete and insert operations in Voronoi/Delaunay methods and applications*
C.R. Stanley and J.J. Hooper	531	POND: an Excel spreadsheet to obtain structural attitudes of planes from oriented drillcore*
Short Note		
Mauro Alberti	539	Fault movement sense attribution methodology with software application in FORTRAN 77°
Announcements		
Richard B. McCammon	543	2000 John Cedric Griffiths Teaching Award of the International

Association for Mathematical Geology

Anthony D. Fowler

545 2001 Felix Chayes Prize for Excellence in Research in Mathematical Petrology of the International Association for Mathematical Geology

Alan M. Lemon and Norman L. Jones	547	Building solid models from boreholes and user-defined cross-sections
Maulin D. Patel and George A. McMechan	557	Building 2-D stratigraphic and structure models from well log data and control horizons
Erich D. Guy, Stanley J. Radzevicius and James P. Conroy	569	Computer programs for application of equations describing elastic and electromagnetic wave scattering from planar interfaces*
Nancy F. Glenn and James R. Carr	577	The use of geostatistics in relating soil moisture to RADARSAT-1 SAR data obtained over the Great Basin, Nevada, USA
Tamaz Chelidze and Teimuraz Matcharashvili	587	Electromagnetic control of earthquake dynamics?
Brian R. Nelson, Witold F. Krajewski, Anton Kruger, James A. Smith and Mary Lynn Baeck	595	Archival precipitation data set for the Mississippi River Basin: development of a GIS-based data browser
Douglas Fortune and Bradley A. Wilson	605	Constant time 0(1) pixel averaging with applicability to kernel filtering*
Chunfu Zhang and James G. Ogg	613	An integrated paleomagnetic analysis program for stratigraphy labs and research projects*
Tomaž Ambrožič and Goran Turk	627	Prediction of subsidence due to underground mining by artificial neural networks*
Kieran F. Mulchrone	639	LinStat, a program for calculating finite strain from populations of lines, running simulations and an investigation of error behaviour*
Jianping Xiang, Daizhan Cheng, F.S. Schlindwein and N.B. Jones	647	On the adequacy of identified Cole—Cole models*
Nicolas Navarro	655	MDA: a MATLAB-based program for morphospace-disparity analysis*
Paul Wessel	665	Compression of large data grids for Internet transmission*
Short Note Luc D. Lepage	673	ILMAT: an Excel worksheet for ilmenite-magnetite geothermometry and geobarometry*
Short Note J.P. Conroy and S.J. Radzevicius	679	Compact MATLAB code for displaying 3D GPR data with translucence*
Association Announcement T.A. Cross	683	2002 John C. Griffiths Teaching Award of the International Association for Mathematical Geology

Carlos A. Vargas-Jimenez and Sergio Rincón-Botero	685	Portable digital seismological AC station over mobile telephone network and internet
Bjørn T. Bruun and Stein Nilsen	695	Wavelet representation of large digital terrain models
V.S. Raptis, R.A. Vaughan and G.G. Wright	705	The effect of scaling on land cover classification from satellite data
J. Antonio Vargas-Guzmán and Roussos Dimitrakopoulos	715	Computational properties of min/max autocorrelation factors
Nagayoshi Katsuta, Masao Takano, Teruyuki Okaniwa and Mineo Kumazawa	725	Image processing to extract sequential profiles with high spatial resolution from the 2D map of deformed laminated patterns
Jan Hrádek, Martin Kuchař and Václav Skala	741	Hash functions and triangular mesh reconstruction*
Eulogio Pardo-Igúzquiza and Peter A. Dowd	753	IRFK2D: a computer program for simulating intrinsic random functions of order \boldsymbol{k}^*
C. Xu and P.A. Dowd	761	Optimal construction and visualisation of geological structures*
Eulogio Pardo-Igúzquiza and Peter A. Dowd	775	CONNEC3D: a computer program for connectivity analysis of 3D random set models*
Jean Braun	787	Pecube: a new finite-element code to solve the 3D heat transport equation including the effects of a time-varying, finite amplitude surface topography*
Short Notes David M. Chew	795	An Excel spreadsheet for finite strain analysis using the $R_{\rm f}/\phi$ technique*
Ahmed Salem, Eslam Elawadi and Keisuke Ushijima	801	Depth determination from residual gravity anomaly data using a simple formula
L.J. Poppe, A.H. Eliason and M.E. Hastings	805	A Visual Basic program to classify sediments based on gravel-sand-silt-clay ratios*
Book review Donald E. Myers	811	Geomodeling — Jean-Laurent Mallet
		NUMBER 7
Andrew Hall, John Louis and David Lamb	813	Characterising and mapping vineyard canopy using high-spatial- resolution aerial multispectral images

Dawn A. Ashbridge, Michael S. Thorne, Mark L. Rivers, Julia C. Muccino and Peggy A. O'Day	823	Image optimization and analysis of synchrotron X-ray computed microtomography (C $\mu T)$ data
David A. Clausi and Yongping Zhao	837	Grey level co-occurrence integrated algorithm (GLCIA): a superior computational method to rapidly determine co-occurrence probability texture features*

VIII	List of Contents
Volker Oye and Michael Roth	851 Automated seismic event location for hydrocarbon reservoirs
Andreas Günther	865 SLOPEMAP: programs for automated mapping of geometrical an kinematical properties of hard rock hill slopes*
Ching-Sheng Chiu and Dah-lih Wang	877 Weighted coordinates transformation method for map overlay wit non-homogeneous space partition
Takashi Oguchi, Tatsuto Aoki and Nobuhisa Matsuta	885 Identification of an active fault in the Japanese Alps from DEM-based his shading
Paolo Gasperini and Gianfranco Vannucci	893 FPSPACK: a package of FORTRAN subroutines to manage earthquak focal mechanism data*
Gianfranco Vannucci and Paolo Gasperini	903 A database of revised fault plane solutions for Italy and surroundin regions
F. Botella, J. Rosa-Herranz, J.J. Giner, S. Molina and J.J. Galiana-Merino	911 A real-time earthquake detector with prefiltering by wavelets
Robert Huber, Jens Klump and Stefan Götz	921 A tree for rocks—hierarchies in stratigraphic databases
B. Žalik	929 An envelope construction of a set of polygons in a land cadastre
Short Note Wang Chuan and Peng Suping	937 The establishment of a trap information system based on GIS
	NUMBER 8
G.R.J. Cooper	941 Feature detection using sun shading*
Daniela Gerovska and	949 Automatic interpretation of magnetic data based on Ful

G.R.J. Cooper	941	Feature detection using sun shading®
Daniela Gerovska and Marcos J. Araúzo-Bravo	949	Automatic interpretation of magnetic data based on Euler deconvolution with unprescribed structural index*
Robert Sturm	961	$\label{eq:SHEARCALC} \textbf{SHEARCALC} - \textbf{a} \ \ \text{computer program for the calculation of volume change and mass transfer in a ductile shear zone}^*$
Cyril Galera, Chakib Bennis, Isabelle Moretti and Jean Laurent Mallet	971	Construction of coherent 3D geological blocks
David B. Kidner and Derek H. Smith	985	Advances in the data compression of digital elevation models
I. Oztug Bildirici	1003	Numerical inverse transformation for map projections*
Eulogio Pardo-Igúzquiza and Peter A. Dowd	1013	SPECSIM2: a program for spectral simulation of anisotropic two-dimensional random fields*
Jörg Schmalzl	1021	Using standard image compression algorithms to store data from computational fluid dynamics*
Thomas A. Jones and J. Lincoln Foreman	1033	AzimMod: Method to honor channel directionality when building 3-D petrophysical models

- Hongjie Xie, Nigel Hicks, 1045 An IDL/ENVI implementation of the FFT-based algorithm for automatic G. Randy Keller, Haitao Huang image registration* and Vladik Kreinovich Eulogio Pardo-Igúzquiza and 1057 Testing for constant spatial mean using the global D-statistic* Peter A. Dowd 1069 Corrigendum to "THPLOT.M: a MATLAB function to implement Clifford R. Stanley generalized Thompson-Howarth error analysis using replicate data" [Comput. Geosci. 29 (2003) 225-2371° **NUMBER 9** Sara L. Moya, Daniel Uribe and 1071 Computational system to estimate formation permeabilities and output **Daniel Montoya** curves of geothermal wells* Sergei Katsev and Ivan L'Heureux 1085 Are Hurst exponents estimated from short or irregular time series meaningful? 1091 Updating Fortran programs and other legacy code to an interactive Jürgen Friedrich and Mahmut O. Karslioglu window platform* 1101 ISOPAQ, a MATLAB program for stratigraphic and isopach mapping: Claude Monnet, Stéphane Bouchet and Philippe Thiry-Bastien example application to the French Bajocian (Jurassic) sediments* A. Luchetta and S. Manetti 1111 A real time hydrological forecasting system using a fuzzy clustering approach Steven M. Holland 1119 BIOSTRAT: a program for simulating the stratigraphic occurrence of fossils* Suk-Joo Choh, Kitty L. Milliken 1127 A tutorial for sandstone petrology: architecture and development of an and Earle F. McBride interactive program for teaching highly visual material* 1137 A logarithmic and sub-pixel approach to shaded relief representation* Yaron Katzil and Yerach Doytsher Sergio Fagherazzi and Tao Sun 1143 Numerical simulations of transportational cyclic steps 1155 Steam tables for pure water as an ActiveX component in Visual Basic Mahendra P. Verma 6.0 Michael B. Gousie, Gregory Williams, 1165 CompSurf: an environment for exploring surface reconstruction Trevor Agnitti and Nicholas Doolittle methods on a grid* Steven Zoraster 1175 A surface modeling algorithm designed for speed and ease of use with all petroleum industry data
 - Short Note 1191 DC_BASE: a database system to manage Nernst distribution Ignacio S. Torres-Alvarado, Surendra P. Verma, coefficients and its application to partial melting modeling"

1183 A BEM solution of steady-state flow problems in discrete fracture

networks with minimization of core storage*

V. Lenti and C. Fidelibus

Hypitia Palacios-Berruete. Mirna Guevara and

Oriana Yuridia González-Castillo

Association Announcements Vera Pawlowsky-Glahn

1199 2003 Felix Chayes Prize

1201 Computers & Geosciences Best Paper Award, 2002

FuatYavuz	1203	Evaluating micas in petrologic and metallogenic aspect: I-definitions and structure of the computer program MICA ⁺ °
Fuat Yavuz	1215	Evaluating micas in petrologic and metallogenic aspect: Part II—Applications using the computer program Mica^{+*}
Hongxing Liu	1229	Derivation of surface topography and terrain parameters from single satellite image using shape-from-shading technique*
Jacek Pniewski, Arkadiusz Sagan and Tomasz Szoplik	1241	Contrast control for grey-level deformation removal in images: an algorithm and a computer application $^{\circ}$
Antonio Henrique da Fontoura Klein, Ariel Vargas, André Luís Alice Raabe and John R.C. Hsu	1249	Visual assessment of bayed beach stability with computer software*
Cheinway Hwang, Cheng-Gi Wang and Yu-Shen Hsiao	1259	Terrain correction computation using Gaussian quadrature*
James R. Carr	1269	Simple random number generation
C.G. Dillon, C. Lloyd and L. Philip	1277	Identifying short-range and long-range structural components of a compacted soil: an integrated geostatistical and spectral approach*
Rui Sun, Zengfang Huang and Zhenhao Duan	1291	A new equation of state and Fortran 77 program to calculate vapor–liquid phase equilibria of $\mathrm{CH_4-H_2O}$ system at low temperatures*
N.P. Singh and Toru Mogi	1301	EMLCLLER—a program for computing the EM response of a large loop source over a layered earth model*

